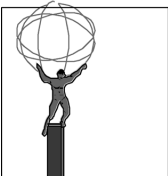




# Introduction

**Howard Gordon**



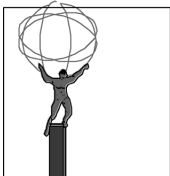
# Agenda

- **9:00 – Status of U.S. ATLAS Construction Project and Research Program – Bill Willis**
- **9:30 - Brief discussion of goals of the meeting and financial situation. Howard Gordon**
- **9:50 - 1.1 - Silicon - Abe Seiden**
- **11:20 - Break**
- **11:30 - 1.3 Liquid Argon - Ryszard Stroynowski**
- **1:00 - Lunch**
- **1:45 - 1.4 TileCal - Larry Price**
- **3:00 - 1.5 Muon Spectrometer - Frank Taylor**
- **4:00 - Break (15 minutes)**
- **5:00 - 1.6 Trigger/DAQ - with plans for baselining - Bob Blair**
- **6:00 - Executive Session**
- **7:00 - Dinner**
- 
- **Friday, March 22**
- 
- **9:00 - 1.2 TRT - Harold Ogren**
- **10:30 - Technical Coordination – Howard Gordon**
- **11:00 - Discussion of issues - Bill Willis**
- **LHC Schedule**
- **U.S. Share**
- **Upgrades**
- **12:30 Lunch**
- **1:30 Executive Session**
- **3:30 Closeout**



# Outline

- **Generally we are planning for the Construction ® Completion ® Operation**
- **LHC Schedule: expect first collisions Spring 2007**
  - ◆ **At this time, we still plan to complete the Construction Project by Sept. 30, 2005**
  - ◆ **M&O starts in FY02**
- **We are scheduled to have two reviews:**
  - ◆ **Technical, Cost and Schedule Performance and Status for DOE/NSF Review June 3-4, 2002**
  - ◆ **M&O Presentations for DOE/NSF Review April 9-11, 2002**
    - **We need your help setting priorities for the FY03-04 funding constraints and scrubbing the numbers for the M&O Review.**
    - **Shall we break up into subsystems?**
- **Estimate to Complete 2002**
- **BCPs - Management Contingency**
- **Installation now part of the Project**
- **Upgrades defined better and not part of the Research Program**
- **Scrutiny of ATLAS M&O (A&B) and C&I (A&B)**
- **DOE Guidance received for the Research Program**
- **NSF Guidance requested**



# DRAFT Agenda April 9-11, 2002 - Fermilab

## DAY ONE IS AN OVERVIEW

08:00 - 08:45 DOE/NSF Committee Executive Session

08:45 - 09:00 Welcome (Witherell)

### Program Overview

09:00 - 09:30 U.S. LHC Research Program Plans (Crawford/Goldberg)

09:30 - 10:15 CERN Plans, MOUs, Scrutiny Group (Yeck/CERN Visitor)

10:15 - 10:30 Break

### U.S. CMS Research Program

10:30 - 10:45 U.S. CMS Research Program Host Laboratory (Witherell or Stanfield)

10:45 - 11:00 U.S. CMS Software & Computing Overview (Bauerdick)

11:00 - 12:00 US CMS Pre-operations & Operations Overview (Green)

12:00 - 12:15 Discussion

12:15 - 01:00 Lunch

01:00 - 01:30 Tour

### U.S. ATLAS Research Program

01:30 - 01:45 U.S. ATLAS Host Laboratory (Kirk)

01:45 - 02:00 U.S. ATLAS Software & Computing Overview (tbd)

02:00 - 03:00 U.S. ATLAS Pre-operations & Operations Overview (Willis)

03:00 - 03:15 Discussion

03:15 - 03:30 Break

### U.S. LHC Accelerator Research Program

03:30 - 04:00 Program Overview (Strait)

04:00 - 04:15 Discussion

04:15 - 05:00 General Discussion/Committee Questions

05:00 - 17:00 DOE/NSF Committee Session

## DAY 2 - DETAILS

Detailed Plans for U.S. CMS and U.S. ATLAS (details tbd by U.S. ATLAS and CMS)

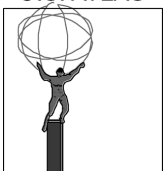
08:30 - 09:00 U.S. CMS Operations Management Plan

09:00 - 10:15 U.S. CMS Subsystem Presentations

10:15 - 10:30 Break

10:30 - 11:15 U.S. CMS Subsystem Presentations

11:15 - 11:45 U.S. ATLAS Operations Management Plan



# ETC02 U.S. ATLAS Project

## – WBS Level 2 Summary

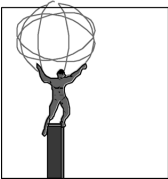
Level 2 AY\$\$s Comparison				
WBS	Subsystem	Table 6-1* (AY\$\$s)	ETC 02 (AY\$\$s) Plus Actuals	Difference (AY\$\$s)
1.1	Silicon	17,940.3	18,725.3	(785.0)
1.2	TRT	9,194.0	9,435.6	(241.6)
1.3	Liquid Argon	43,771.7	43,783.6	(11.9)
1.4	Tile	9,352.1	9,510.7	(158.6)
1.5	Muon	26,391.2	26,386.3	4.9
1.6	TrigDAQ	3,117.9	3,133.1	(15.2)
1.7	Common Projects	9,179.1	9,179.1	0.0
1.8	Education	286.5	286.5	0.0
1.9	Project Management	8,279.0	8,279.0	0.0
1.10	Technical Coordination	450.0	450.0	0.0
	Subtotal	127,961.8	129,169.2	(1,207.4)
	Contingency	27,948.7	26,741.3	1,207.4
	Technical Baseline	155,910.5	155,910.5	
	Trigger Daq	7,839.5	7,839.5	
Total Project		163,750.0	163,750.0	



# ETC02 U.S. ATLAS Project

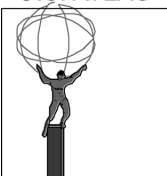
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- **Estimates based on FY 02 Dollars.**
- **Additional BCP's (after ETC-02) are not included in the backup material.**
- **ATLAS "Need Date" for U.S. ATLAS deliverables taken from the current ATLAS baseline.**
- **Overall Contingency is being Reviewed.**



# U.S. ATLAS ETC 02 Level 4 Milestones Comparison

		Level 4 Milestones (Baseline Scope)				
		U.S. ATLAS				
		Responsibility	ETC 01	ETC 02	ATLAS	ETC 02
WBS	Schedule	Completion	Planned	Planned	Required	Planned
	Designator	Description	Completion	Completion	Date	Float
			Date	Date		(Months)
<b>Silicon</b>						
1.1.1	Sil L4/3	Pixels 'Disk System at CERN'	10/04	1/05	12/04	-1
<b>TRT</b>						
1.2.1	TRT L4/1	Barrel Modules Ship to CERN Compl (CUM 69)	8/02	8/03	7/03	-1
<b>Liquid Argon</b>						
1.3.7.1	LAr L4/22	FEB Last Delivery Complete	8/04	10/04	1/05	3
<b>Muon</b>						
1.5.4	Muon L4/5	CSC Chambers Production Complete	1/03	4/03	4/04	12
<b>Trigger/DAQ</b>						
		Baselining	Dec-02	Dec-02	Dec-02	0



# Management Contingency

WBS	Description	Scope-\$s (FY02 \$s)	Decision Date	Priority	Initial Detector (I:in O:out)	Upgrade?	Procurements	Running Sum		
1.4.1.1.3	Tile Sub-Mod Assembly	0	2/1/2001	1	Y - I			0	BCP 39	333,108
1.4.1.2.3	Tile Module Assembly	0	2/1/2001	1	Y - I			0	BCP 39	215,698
1.4.4.1.3	ITC Gap Submodules Prod	0	2/1/2001	1	Y - I			0	BCP 39	206,504
1.4.4.2.3	Cryostat Scintillators Mech	0	10/1/2001	1	Y - I			0	BCP 39	54,000
1.10.	<b>Technical Coordination</b>	0	2/1/2001	1	Y - I			0	BCP 38	\$450,000
1.10.	<b>Technical Coordination</b>	1,700,000	9/1/2001	2	Y - I			1,700,000	BCP 50	850,000
1.2.1.1	TRT Mech Module Production	600,000	5/1/2002	3	Y - I			2,300,000	coming	
1.3.7.1.3	FEB Components Prod	0	4/1/2001	6	Y - I		Yes	2,300,000	BCP 47	1600000
1.3.6.5.3	<b>Cooling Production</b>	564,226	2/15/2002	10	Y - I		Yes	2,864,226	BCP 57	
1.1.1.2.3.1.2	Pixels Sensors	0	9/30/2001	16	Y - I		Yes	2,864,226	BCP 52	83,000
1.1.1.2.3.1.3	Pixel Sensor Testing (FY02	0	7/1/2001	18	Y - I			2,864,226	BCP 52	62,000
1.1.1.4.3.1.1	Bare Flex hybrid production	233,320	7/1/2002	18	Y - I		Yes	3,097,546		
1.1.1.4.3.1.2	Flex components & assembly	132,233	7/1/2002	18	Y - I		Yes	3,229,779		
1.1.1.3.3.1.1.2	FE IBM Production	64,670	3/1/2003	18	Y - I		Yes	3,294,449		
1.1.1.4.3.3.2	Optical Hybrids	32,621	3/1/2003	18	Y - I		Yes	3,327,070		
1.1.1.4.3.3.1	Optical Package & Componer	0	3/1/2003	18	Y - I		Yes	3,327,070		
1.1.1.3.3.2.1	Optoelectronics Production	26,460	3/1/2003	18	Y - I		Yes	3,353,530		
1.1.1.3.3.1.2	B-layer Production	30,274	11/1/2003	18	Y - I			3,383,804		
1.1.1.5.3.3	FE IC die sort	98,976	6/1/2003	18	Y - I			3,482,780		
1.2.5.1	TRT Elec.'s Chip Prod	267,000	2/28/2002	19	Y - I		Yes	3,749,780	Expected	384,000
1.2.5.2.3	TRT Elec.'s DTM Prod	391,000	2/28/2002	19				4,140,780		
1.2.5.4	TRT Common Elec.'s	175,000	2/28/2002	19				4,315,780		
1.3.6.4	Power Supplies Prod/Install	1,208,825	6/1/2002	20	Y - I		Mostly	5,524,605		
1.1.3.8	ROD Fabrication	550,000	9/15/2002	21	Y - O		Yes	6,074,605		
1.4.3.4.3	Digitizing Elec.'s(optical lin	0	9/1/2001	22	Y - I		Yes	6,074,605	BCP 49	142,000
1.3.9.1.3	ROD Fabrication	268,778	4/30/2002	23	Y - O		Yes	6,343,383		
1.3.7.1.4	FEB Test/Installation	275,269	9/1/2003	24	Y - I			6,618,652		
1.3.9.1.4	ROD Installation	95,000	10/1/2003	25	Y - O			6,713,652		
1.3.6.5.4	Cooling Installation	88,187	7/2/2002	29	Y - I			6,801,839		
1.3.6.3.4	Crate Installation	29,502	7/1/2002	30	Y - I			6,831,341		
1.4.1	<b>Tile Installation and Design</b>	542,055	2/14/2002		Y-I			7,373,396	BCP 53	
ALL	<b>General Installation</b>	7,000,000	6/1/2002					14,373,396	Agency Guidance	
1.4.4.2.3	Cryostat Scintillators Prod	265,000	10/1/2001	32	N - I	Yes		14,638,396		
1.2.1.2	TRT Gas/Cooling	158,000	2/14/2002	34	Y - O		Yes	14,796,396		
1.1.2.1	Sil Strip Chip (IC Elec.'s)	300,000	5/1/2002	35	Y - I		Yes	15,096,396	BCP 51	414,248
1	<b>Beam Pipe support(NEW)</b>	650,000	12/15/2001		Y-I			15,746,396	In TC abov	0
1.2.1.1	TRT Mech Module Production	185,000	5/1/2002	36	Y - I			15,931,396		
1.2.1.3	TRT Integration/Installation	818,000	6/3/2002	38	Y - O			16,749,396		
1.2.5.6	TRT Elec.'s Install & Test	184,000	2/15/2002	40	Y - O			16,933,396		
1.4.3.1.3	PMT Block Assembly	368,784	7/30/2001	42	Y - I		Yes	17,302,180		
1.5.7	Tubes, endplugs & wire	288,000	6/30/2002	43	N	Yes	Yes	17,590,180		

U.S. ATLAS Project Manager's Review with the Project Advisory Panel

March 21-22, 2002 @ BNL



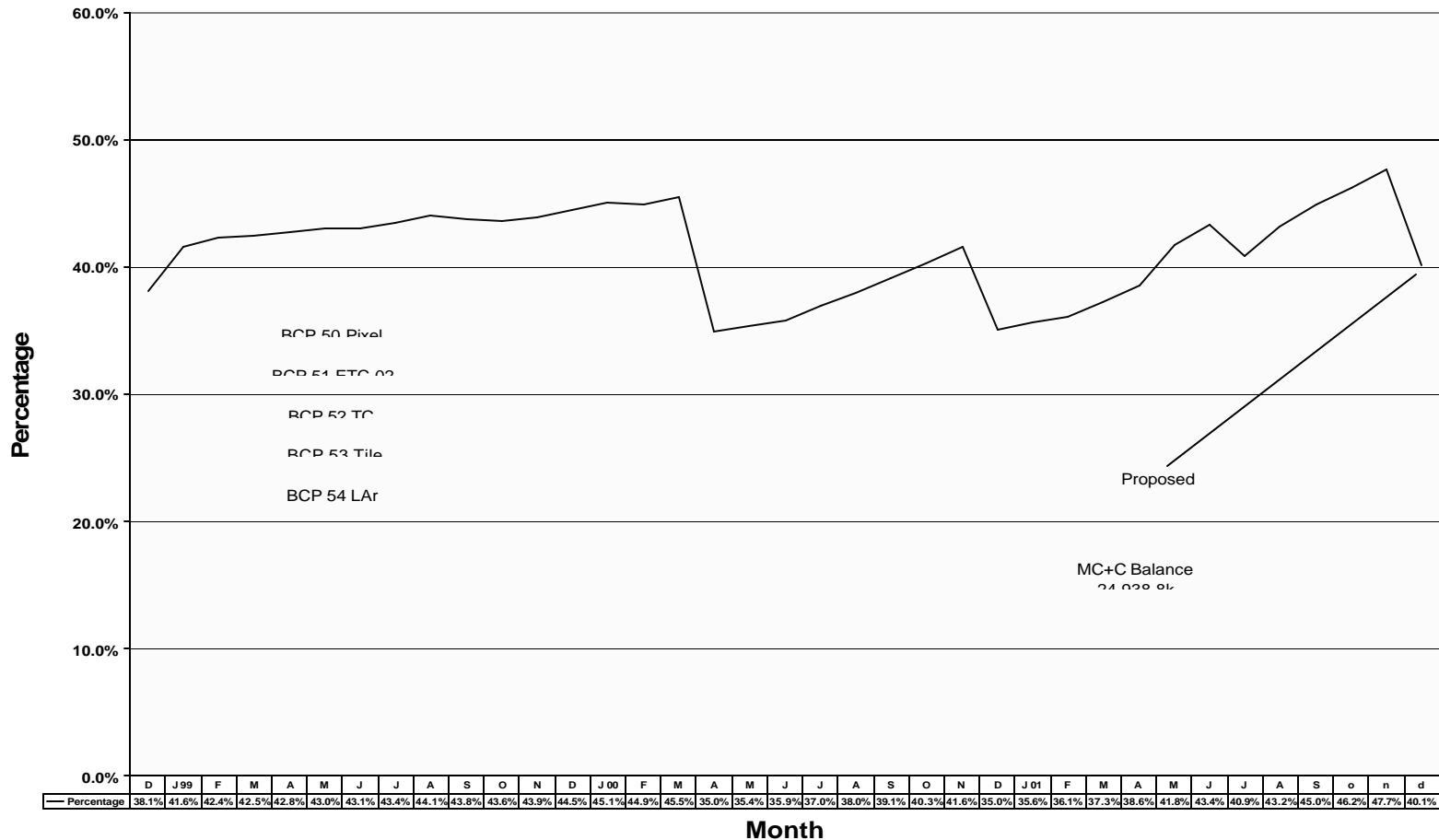
# Recent BCPs

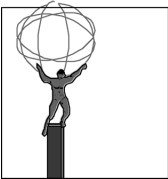
- **#53 – 1.4.1 Tile Calorimeter Pre-Assembly and Support Structure - \$542.1k**
  - ◆ Arose from ETC02 – increase in scope
  - ◆ Discussion with ATLAS – manpower not cost effective
  - ◆ Still under discussion with ATLAS management
- **#54 – 1.3.6 Liquid Argon Calorimeter Cooling Plate Production - \$564.226k**
  - ◆ Critical and approved



# Contingency Analysis

Contingency Performance  
as a Percentage of Remaining Funds





# ATLAS Cavern Progress

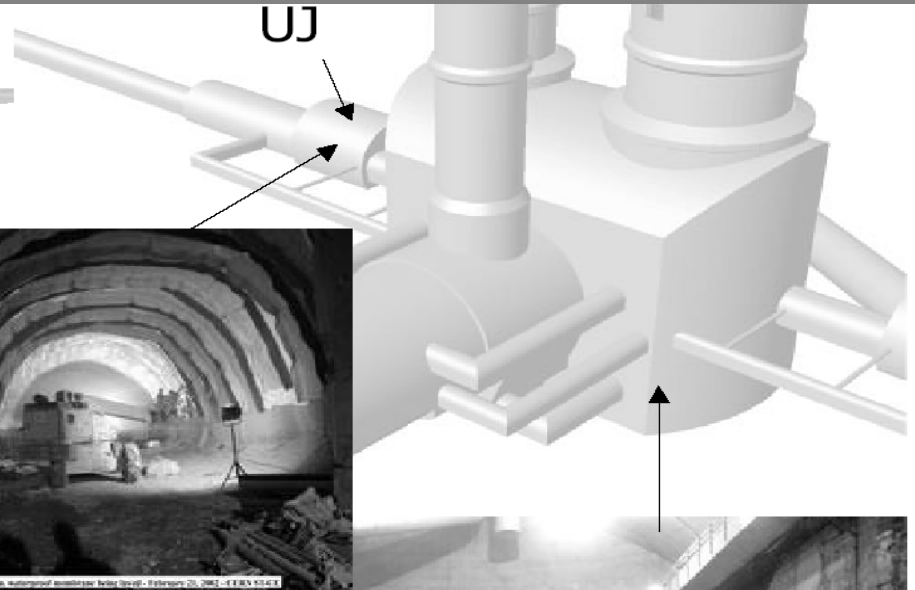
**UX15**



Point 1 - UX cavern, excavation works - February 21, 2002 - CERN ST-CE



Point 1 - UX15 cavern, autonomous tunneling robot (TBM) - February 21, 2002 - CERN ST-CE



*sequence of operations:*

- LEP level reached in Nov. 2001
- excavation of UJ beam caverns
- February 2002 UX15 excavation restarted
- excavation should end by May 2002

2/28/2002



Point 1 - UX15 cavern - View from RB14 to RB16 - November 21, 2001 - CERN ST-CE

# UX15 delivery

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*Problems have been anticipated for the excavation of the last 10 m*

- The soil composition is different, more fragile
- Possible stability problems anticipated if in the excavation no specific precautions are taken
- The excavation could go slower and require continuous reinforcements with concrete
- All this might cause 1 month additional delays (this is not yet confirmed) and important overcosts

*→ The delivery date today is mid March 2003 and  
could move to mid April 2003*

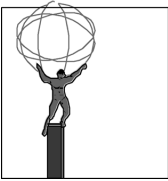
# Some examples of version 4.0



*~2.5 months added to the installation of the barrel toroid as requested by the magnet ASSO internal review*

Version 5.0 of the schedule will be released soon after the new LHC schedule is official – summer 2002

Critic	Task Name	Duration	Start	Finish	2002				2003				2004				2005				2006			
					Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
■	UX 15 Hand-over	0 days	15 Mar '03	15 Mar '03	15/3	■	UX 15 Hand-over																	
■	PHASE 1: Infrastructure & Feet	313 days	17 Mar '03	26 May '04		■					■													
■	Infrastructure in UX15	313 days	17 Mar '03	26 May '04	13 days	■ Infrastructure in UX15																		
■	UX available for ATLAS	0 days	10 Oct '03	10 Oct '03			10/10	■	UX available for ATLAS															
■	ATLAS Bedplates & Feet	25 days	10 Oct '03	14 Nov '03			25 days	■	ATLAS Bedplates & Feet															
■	PHASE 2: Barrel Toroid & Barrel Calorimeter	279 days	17 Nov '03	9 Dec '04				■					■											
■	Phase 2a: Barrel Toroid	279 days	17 Nov '03	9 Dec '04																				
■	TB Coils 1-2	60 days	17 Nov '03	6 Feb '04			60 days	■	TB Coils 1-2															
■	Rail Supports and Rails	8 days	26 Jan '04	4 Feb '04			8 days	■	Rail Supports and Rails															
■	TB Coils 3 & 4	38 days	9 Feb '04	31 Mar '04			38 days	■	TB Coils 3 & 4															
■	TB Coils 5-8	76 days	1 Apr '04	15 Jul '04			76 days	■	TB Coils 5-8															
■	HS upper part	20 days	16 Jul '04	12 Aug '04					20 days	■	HS upper part													
■	Fix Rails	14 days	13 Aug '04	1 Sep '04					14 days	■	Fix Rails													
■	Shielding nose mono-block side A	5 days	13 Aug '04	19 Aug '04					5 days	■	Shielding nose mono-block side A													
■	TB Proximity Services	136 days	1 Apr '04	7 Oct '04			136 days	■	TB Proximity Services															
■	TB Functional test	45 days	7 Oct '04	9 Dec '04					45 days	■	TB Functional test													
■	Phase 2b: Barrel Calorimeter	96 days	15 May '04	27 Sep '04																				
■	Barrel Calorimeter Assembly	71 days	15 May '04	23 Aug '04			71 days	■	Barrel Calorimeter Assembly															
■	Chimney	14 days	2 Sep '04	21 Sep '04					14 days	■	Chimney													
■	Shielding nose mono-block side C	5 days	21 Sep '04	27 Sep '04					5 days	■	Shielding nose mono-block side C													

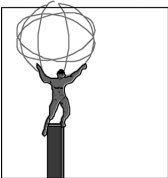


# ATLAS Plan for completion

## Deferrals and Reductions

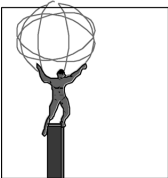
Item	Resources directed towards (MCHF)		
	Construction completion costs Common items	system-sp.	M&O and C&I
<i>Scenario b)</i>			
Processors CP	4.0		
3 <sup>rd</sup> Pixel layer parts	3.0		
JF shielding parts	1.0		
Experimental area budget	4.4		
Various system-specific M&O and C&I 2002		3.7	0.9
<b>Total</b>	<b>12.4</b>	<b>3.7</b>	<b>0.9</b>
<i>Scenario c)</i>			
HLT/DAQ components	10.0 – 15.0		
Various system-specific M&O and C&I 2003-2005		4.0	5.0
<b>Total c) (including b)</b>	<b>22.4 – 27.4</b>	<b>7.7</b>	<b>5.9</b>

This is a staging plan by priority. ATLAS needs to borrow ~30 MCHF by the end of 2003 to make the experiment work!



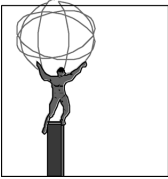
# Definitions

- **U.S. ATLAS Research Program includes**
  - ◆ **Maintenance and Operations (M&O) which includes:**
    - **Pre-operations and Commissioning**
      - **A limited amount of resources were available in the Detector Construction Project in trying to maximize deliverables – so some “Commissioning and Integration” will be included here**
    - **Operations: Beams-on time**
    - **Maintenance: Beams-off time**
  - ◆ **Upgrade R&D**
    - **Upgrade R&D is envisaged for the luminosity upgrade of the LHC  $10^{35} \text{ cm}^{-1} \text{ s}^{-1}$** 
      - **New more radiation hardened electronics: LAr Front End Boards (FEB), LAr ROD upgrade, Silicon Strips, Pixels, etc.**
- **Some upgrades add physics capability to the initial detector: 3<sup>rd</sup> layer of pixels, EE MDT chambers, Cryostat scintillators**
  - ◆ **A focused NSF proposal is being prepared to include the EE MDT chambers ~80 including their electronics, alignment and all Chamber Service Modules (CSMs). Also the electronics for the CSC plane not in the baseline.**



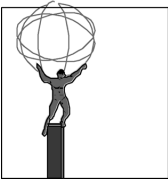
# Upgrades

- **A DOE proposal could be made for:**
  - ◆ **The third layer of the pixels – however, we are only 20% of the international ATLAS pixel effort. If we ask for money without our Europeans doing this – it does not make sense. The third layer is part of the “deferrals.” Therefore we expect to do R&D for now.**
  - ◆ **32 CSC chambers – however, we should probably wait for the first collider run?**
  - ◆ **Cryostat scintillators - \$265k – an MIE by itself?**
  - ◆ **Liquid Argon ROD upgrade ~\$1M**
  - ◆ **TRT components ~1M**
  - ◆ **Worry that such items would be seen as breaking the cap**
- **We have decided to NOT submit a DOE proposal at this time.**
  - ◆ **These items are already in the Management Contingency**



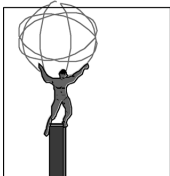
# ATLAS Planning

- **CERN asked each experiment to estimate M&O**
- **ATLAS had a Working Group and produced a document which divided costs into different categories:**
  - ◆ **Category A – Common Funds Shared by the whole experiment or System**
  - ◆ **Category B – Institute (or county)**
  - ◆ **Category C – Host Lab responsibility (minimized – even excluding electric power)**
- **In August/September a small group representing the RRB (Resource Review Board – funding agencies) “scrutinized” the M&O estimates and found and separated some costs which were called “C&I” Commissioning and Integration. The scrutinizing continues for M&O Category B, and C&I.**
- **There is a DRAFT MOU for M&O which is being finalized for next year. Kirk and Willis will be expected to sign!**
- **There still needs to be planning for all manpower required**
- **Under a reorganized Technical Coordination, ATLAS has an installation schedule which all systems are trying to follow**



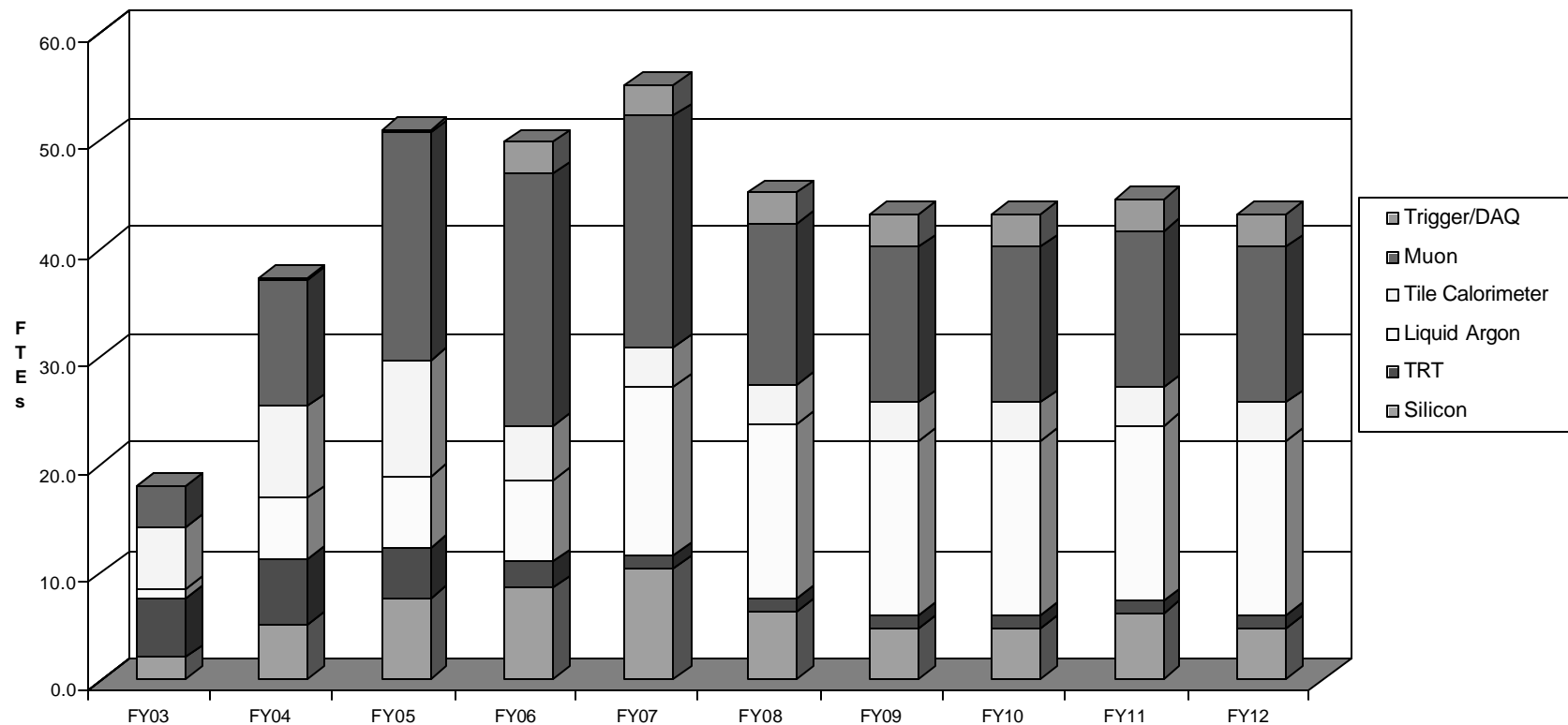
# Our Strategy for U.S. ATLAS

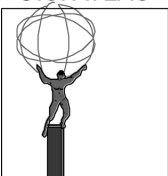
- The U.S. M&O program will focus on the U.S. deliverables – we plan to support our deliverables through the C&I and M&O stages.
- For ATLAS there will be requests for contributions in 2002 to "Supplementary Costs" (52 MCHF)- overruns and for M&O (22.4 MCHF 2002-2005) and C&I (Commissioning and Integration) (21.1 MCHF). Our position is the following:
  - ◆ On the cost overruns - we are capped at \$163.75 and are trying to maximize our deliverables by adding any items that we can from the Management Contingency list. We estimate that we could have 12-15 MCHF available yet for ATLAS. This will be assigned to obtain the greatest benefit for the experiment for detector elements, integration, common projects and other costs. We have set up a mechanism, the U.S. Management Contingency Steering Group, to determine how to use these funds for the best in ATLAS. Costs.
  - ◆ On the M&O and C&I Category A&B- we plan to contribute our share - however in FY2002-FY2004 we expect to have limited funds. Our own estimate for the U.S. share of these costs asymptotically reaches ~\$11M by 2007. We note this is a large factor above the ATLAS estimate of our share due to the different accounting practices. We will certainly provide our proportionate share of these costs.



# U.S. ATLAS M&O FTEs

US ATLAS M&O FTEs





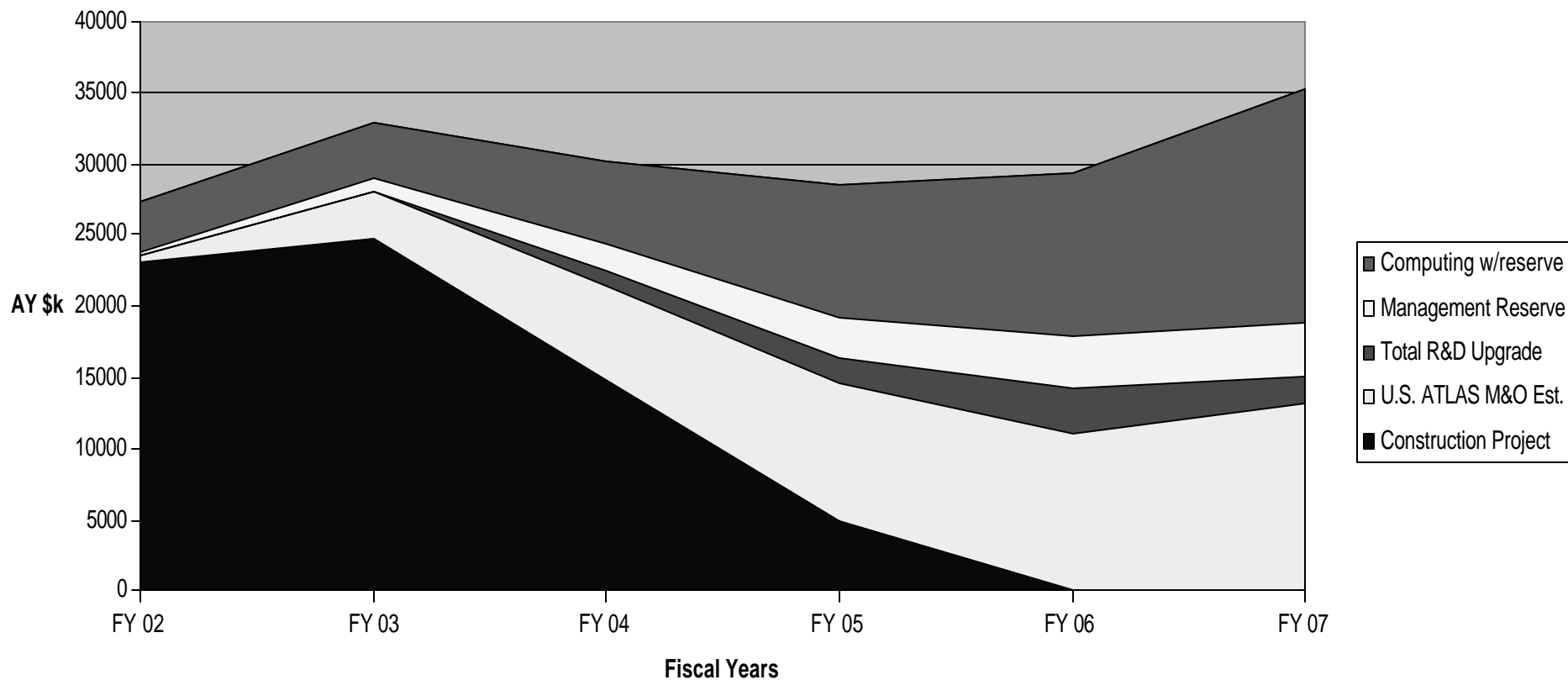
# M&O and Upgrade R&D + Computing

WBS	Description	AY \$k					
		FY 02	FY 03	FY 04	FY 05	FY 06	FY 07
<b>3.0</b>	<b>U. S. ATLAS M&amp;O</b>	<b>489</b>	<b>3371</b>	<b>6804</b>	<b>9721</b>	<b>10947</b>	<b>13216</b>
3.1	Silicon	194	431	526	779	1168	1737
3.2	TRT		449	1200	917	603	512
3.3	Liquid Argon		394	1330	1486	1993	4124
3.4	TileCal	206	989	986	1372	1077	881
3.5	Muon	0	238	745	1418	1685	1686
3.6	Trigger/DAQ		0	94	374	870	1017
3.7	Common ATLAS	89	453	1062	1489	1340	984
3.8	Education / Outreach		106	169	209	253	261
3.9	Project Office		311	320	1021	1056	1087
3.10	Technical Coordination		0	371	656	900	927
<b>4.0</b>	<b>U. S. ATLAS R&amp;D Upgrade</b>	<b>0</b>	<b>0</b>	<b>930</b>	<b>1743</b>	<b>3294</b>	<b>1806</b>
4.1	Silicon		0	748	944	1946	519
4.2	TRT		0	0	0	0	0
4.3	Liquid Argon		0	182	799	1348	1287
4.4	TileCal		0	0	0	0	0
4.5	Muon		0	0	0	0	0
	<b>Reserve @ 25% of M&amp;O and R&amp;D</b>	<b>124</b>	<b>843</b>	<b>1934</b>	<b>2866</b>	<b>3560</b>	<b>3755</b>
<b>2.0</b>	<b>Computing w/reserve</b>	<b>3581</b>	<b>4017</b>	<b>5745</b>	<b>9292</b>	<b>11469</b>	<b>16380</b>
	<b>Grand Total (RP Need)</b>	<b>4193</b>	<b>8231</b>	<b>15413</b>	<b>23621</b>	<b>29270</b>	<b>35157</b>
	<b>Construction Project</b>	<b>23157</b>	<b>24706</b>	<b>14690</b>	<b>4909</b>		
	<b>DOE RP Guidance @3/02</b>	2550	3350	4400	13000	22500	23500
	<b>NSF Proposal</b>	2617	3891	6973	11135	11122	?
	<b>Total Target Funding</b>	<b>5167</b>	<b>7241</b>	<b>11373</b>	<b>24135</b>	<b>33622</b>	<b>23500</b>
	<b>Need vs. Target</b>	974	(990)	(4040)	514	4352	(11657)



# Total U.S. ATLAS Program

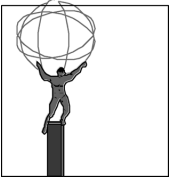
## U.S. ATLAS Research Program





# Issues and Tensions

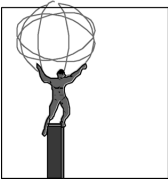
- **Construction money – fixed**
  - ◆ “Installation” is newly defined and included
    - Now defined to be the cost of inserting the U.S. deliverable into ATLAS
  - ◆ Try to maximize deliverables
  - ◆ Installation costs in MC need to be understood
- **M&O Budget guidance expected soon from the NSF**
  - ◆ Funding our obligations for ATLAS compete with money for our M&O needs
    - \$300k for FY02 will be available in April
      - 30% M&O invoice 140kCHF~\$85k
      - ~\$110k ABCD Spares
      - ~\$100k Tilecal Mechanical Commissioning
  - ◆ Will there be enough to cover the needs for pre-operations and commissioning of the U.S. deliverables? Probably not in FY03!
  - ◆ ATLAS will be interested and involved in our plans!



# Issues (continued)

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- **Management of the Research Program**
  - ◆ **Transition from Construction Project to Research Program**
  - ◆ **Tension between money for M&O and computing**



# U.S. ATLAS Computing

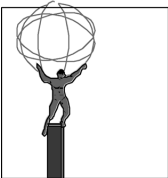
- **Facts:**

- ◆ DOE has given us \$2.25M when \$2.50 was expected for FY02
- ◆ NSF has a proposal which asks for \$1.762M for FY02
- ◆ We have a labor dominated budget (NO hardware for FY02!)
  - 4.5 FTEs at LBNL – Framework
  - 3.0 FTEs at ANL – Data Management
  - 4.5 FTEs at BNL – Tier 1
  - 3.0 FTEs at BNL – Software – mainly Data Management
  - We need ~\$1.7 M to fund these for the rest of the fiscal year.  
The shortage (~\$700k) represents 6 people for ½ year!

- **We have stretched out the schedule based on the 2007 start by basically delaying plans for 2003->2004 etc. Same staff in 2003 as in 2002 with a modest hardware investment.**

- **Questions:**

- ◆ **How much and when will we get money from the NSF?**



# U.S. ATLAS Research Operation Management

## U.S. ATLAS RESEARCH MANAGEMENT ORGANIZATION

